Labour Market and
Economic Indicators Dashboard

Mining, Oil and Gas Industry

2006

Building and Educating
Tomorrow's Workforce

Alberta

Mining, Oil and Gas Industry

2007-03914/

Introduction

By March 2006, 34 of 53 occupational groups tracked by the Alberta government showed an unemployment rate of three per cent or less, indicating skill and labour shortages. This document presents a series of economic indicators to identify labour and skill shortages or surpluses in industry sectors.

Indicators such as the unemployment rate, vacancy rate, hiring difficulty rate and demand-supply ratio[1] are used to determine the presence of shortages or surpluses now and in the future. This tool should not be used to make decisions. Instead, the intent of this dashboard is to spark discussion and give a snapshot of where the occupational cluster is likely to be within the next 10 year period. Additional provincial labour market information, including regional information, can be obtained at www.lmaprodvip.com to assist with decision making.

What is a shortage?

Shortages were determined by looking at the unemployment, vacancy, and hiring difficulty rates, as well as the demand-supply ratio for a number of occupational clusters within sectors. Occupations are sorted by industry sector as outlined in Appendix A.

This booklet uses a traffic light system to help define shortages, based on the following:

Unemployment: If the unemployment rate of an occupation is less than three per cent, there is a shortage.

Vacant jobs: If the vacancy rate of an occupation is more than two per cent, there is a shortage.

Hiring difficulty: If the hiring difficulty rate of an occupation is more than 25 per cent, there is a shortage.

Demand and supply of workers: A demand-supply ratio of greater than one indicates a supply shortage while a ratio of less than one indicates a supply surplus.

Occupational clusters are coded red, yellow or green based on the following:[2]

Red – All indicators show shortage OR the vacancy rate is over five per cent and the reported hiring difficulty over 40 per cent.

Yellow – One or more indicators show shortage.

Green – All indictors show a surplus.

[1] See Appendix B for more information about the unemployment rate, vacancy rate, hiring difficulty rate and/or demand-supply ratio.

[2] See Appendix C for more detailed information on the colour coding for each occupation.

Manufacturing

The mining, oil and gas industry is a broad industry that includes coal, electricity, minerals, natural gas, oil, oil sands, and petrochemicals. Energy technologies and services considerations include enhancing oil recovery, oil sands research, coal bed methane technology development, and clean coal technology development.

Industry Challenges and Issues

Although buoyed by very high prices in 2004 and 2005, the conventional oil and gas industry in Alberta is declining as the Western Sedimentary Basin matures.

This has a number of implications:

- there will be a general decrease in overall labour demand, and
- there will be a shift in skill requirements as the industry moves away from wildcat and step-out drilling to enhanced recovery methods.

Other factors that contribute to the labour challenges faced by the mining, oil and gas industry include:

- the sector's vulnerability to fluctuations in world oil prices,
- the challenging working conditions and perceptions of the work being dangerous,
- the seasonal nature of much of the work,
- recruitment challenges such as inadequate community infrastructure, and finding the right skills,
- an education system that is not responding fast enough to meet the demands of industry, and
- relatively high levels of economic activity in other provinces and the U.S that hamper recruitment from other provinces and abroad.

Occupational Cluster	2003[1]	2005	2015
Administrative and Regulatory Occupations	Concern	Concern	Shortage

[1] This information is based on Government of Canada statistics and projections for the North American Industry Classification System (NAICS) major group 23.

[2] The rationale for using 2003, 2005, and 2015 as years to show trend is indicated in Appendix D.

Occupational Cluster	2003	2005	2015
Administrative Services Managers	Concern	Concern	Surplus
Administrative Support Clerks	Surplus	Concern	Surplus
Architects, Urban Planners and Land Surveyors	Shortage	Shortage	Shortage
Auditors, Accountants and Investment Professionals	Concern	Concern	Surplus
Central Control and Process Operators in Manufacturing and Processing	Surplus	Concern	Shortage
Civil, Mechanical, Electrical and Chemical Engineers	Concern	Shortage	Shortage
Cleaners	Surplus	Concern	Surplus

Occupational Cluster	2003	2005	2015
Clerical Occupations, General Office Skills	Surplus	Concern	Surplus
Clerical Supervisors	Concern	Concern	Shortage
Computer and Information Systems Professionals	Concern	Concern	Surplus
Contractors and Supervisors, Trades and Related Workers	Concern	Concern	Shortage
Crane Operators, Drillers and Blasters	Concern	Concern	Surplus
Electrical Trades and Telecommunication Occupations	Concern	Concern	Shortage
Heavy Equipment Operators	Concern	Concern	Surplus

Occupational Cluster	2003	2005	2015
Human Resources and Business Service Professionals	Concern	Concern	Surplus
Labourers in Processing, Manufacturing and Utilities	Concern	Concern	Surplus
Legislators and Senior Management	Concern	Concern	Surplus
Library, Correspondence and Related Information Clerks	Surplus	Concern	Shortage
Machine Operators and Related Workers in Chemical, Plastic and Rubber Processing	Surplus	Concern	Shortage
Machine Operators and Related Workers in Metal and Mineral Products Processing	Concern	Shortage	Surplus
Machinists and Related Occupations	Concern	Concern	Shortage

Occupational Cluster	2003	2005	2015
Mail and Message Distribution Occupations	Concern	Concern	Shortage
Managers in Communication (except Broadcasting)	Concern	Concern	Surplus
Managers in Engineering, Architecture, Science Information Systems	Concern	Concern	Surplus
Managers in Financial and Business Services	Concern	Concern	Surplus
Managers in Manufacturing and Utilities	Concern	Concern	Shortage
Managers in Primary Production (except Agriculture)	Concern	Concern	Shortage
Managers in Protective Service	Concern	Concern	Surplus

Occupational Cluster	2003	2005	2015
Mine Service Workers and Operators in Oil and Gas Drilling	Concern	Concern	Surplus
Office Equipment Operators	Surplus	Concern	Shortage
Physical Science Professionals	Concern	Shortage	Surplus
Plumbers, Pipe Fitters and Gas Fitters	Concern	Shortage	Shortage
Policy and Program Officers, Researchers and Consultants	Concern	Concern	Surplus
Primary Production Labourers	Concern	Concern	Surplus
Printing Press Operators, Commercial Divers and Other Trades and Related Occupations, Not Elsewhere Classified	Concern	Concern	Surplus

Labour Market and Economic Indicators Dashboard

Occupational Cluster	2003	2005	2015
Public Works and Other Labourers, Not Elsewhere Classified	Concern	Surplus	Surplus
Recording, Scheduling and Distributing Occupations	Concern	Concern	Shortage
Sales and Service Supervisors	Concern	Concern	Shortage
Sales, Marketing and Advertising Managers	Concern	Concern	Surplus
Secretaries, Recorders and Transcriptionists	Surplus	Concern	Surplus
Stationary Engineers and Power Station and System Operators	Concern	Shortage	Shortage
Supervisors, Mining, Oil and Gas	Concern	Concern	Surplus

Occupational Cluster	2003	2005	2015
Supervisors, Processing Occupations	Concern	Concern	Shortage
Technical Occupations in Architecture, Drafting, Surveying and Mapping	Surplus	Shortage	Shortage
Technical Occupations in Civil, Mechanical and Industrial Engineering	Surplus	Concern	Shortage
Technical Occupations in Computer and Information Systems	Surplus	Concern	Surplus
Technical Occupations in Physical Sciences	Surplus	Concern	Shortage
Trades Helpers and Labourers	Surplus	Concern	Surplus
Train Crew Operating Occupations	Concern	Shortage	Shortage

Labour Market and Economic Indicators Dashboard

Occupational Cluster	2003	2005	2015
Underground Miners, Oil and Gas Drillers and Related Workers	Concern	Shortage	Surplus
Writing, Translating and Public Relations Professionals	Concern	Concern	Surplus

Appendix A

Approximately 140 distinct occupations[1] are included in the 12 dashboards Alberta Human Resources and Employment prepared. Occupations selected are based on the National Occupational Classification (NOC) system. The NOC is a system that classifies and describes occupations in the Canadian labour market.

Occupations are grouped by industry based on the concentration (percentage of those working in the occupation) employed in a particular industry. Occupations listed in each industry group are based on the North American Industry Classification System. For instance, the industries where Automotive Service Technicians (NOC 7321) are concentrated include: Retail Trade (76%), Transportation (12%), Public Administration (3%), Construction (1%), and other (8%). According to these results, the Automotive Service Technicians occupation would appear in the Retail Trade, Transportation, Public Administration, and Construction dashboards.

The 12 industry groups selected and described in the dashboards are aligned with the sectors highlighted in the sub-strategies from *Building and Educating Tomorrow's Workforce* and are based on the key sectors profiled in *Understanding Alberta's Labour Force: Looking to the Future*, as well as the industry groups used in *Alberta Careers 2004*. The selected industry groups include:

	Industry Group
1	Agriculture and Agri-Food
2	Construction
3	Forestry
4	Finance, Insurance and Real Estate
5	Health Care
6	Information and Communication Technology (ICT)
7	Manufacturing
8	Mining, Oil and Gas
9	Public Administration
10	Retail Trade
11	Tourism
12	Transportation

[1] Not all 140 occupations are listed in this particular dashboard.

Appendix B

Economic Indicators

Unemployment Rate – The unemployment rate identifies the proportion of people in the labour force[1] who do not have jobs but are actively looking for jobs. According to Statistics Canada, an unemployment rate of less than three per cent is an indicator of a shortage. Alberta's unemployment rate has been steadily declining in the past decade – from 8.8 per cent in 1994 to 4.6 per cent in 2004. Our latest monthly statistics reports an even lower rate for July 2006 at 3.6 per cent.

Vacancy Rate – The vacancy rate, taken from the *Alberta Wage and Salary Survey*, determines the percentage of unfilled jobs compared to all filled and unfilled jobs. The overall vacancy rate is calculated as below:

$$\frac{\text{Number of vacancies}}{\text{Number of employed + number of vacancies}} \times 100$$

Hiring Difficulties Rate – The hiring difficulty rate represents the proportion of employers who indicated hiring difficulties in the *Alberta Wage and Salary Survey*. It was determined by the percentage of 'Yes', 'No', and 'N/A' responses to the survey question.

Demand-Supply Ratio – The demand supply ratio compares labour market imbalances among occupations. It is taken from Alberta Human Resources and Employment's *Occupational Demand and Supply Outlook* model. This model projects that overall 400,000 new jobs will be created by 2015, but only 314,000 workers will be available for these jobs. This leaves a shortfall of 86,000 workers.

Additional provincial labour market information, including regional information can be obtained at www.lmi.gov.ab.ca/lmi.

[1] The labour force includes both those that are employed and unemployed.

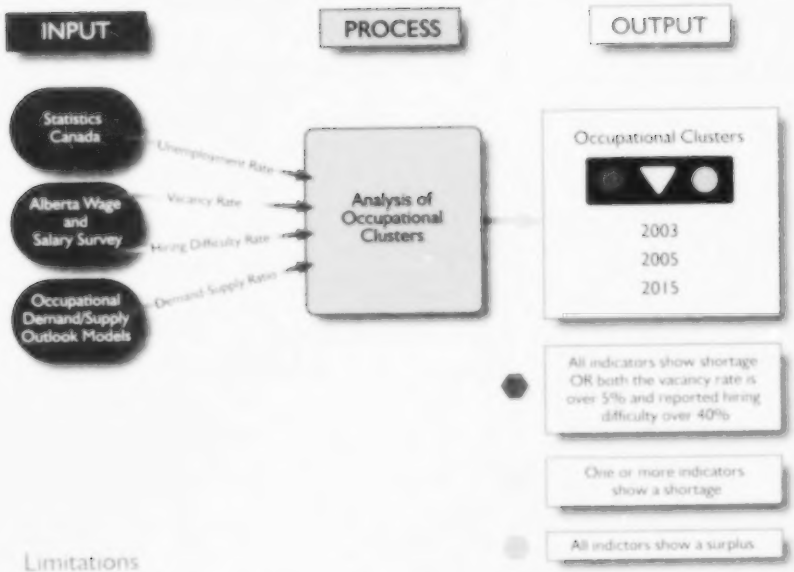
Appendix C

The forecasted indicator for 2015 is expressed as either red or green based on its associated demand-supply ratio. This is due to the ratio resulting in either greater than or less than one.

If the ratio is greater than one, then demand is greater than supply. This is a supply shortage, which means the indicator would be red.

If the ratio is less than one, then supply is greater than demand. This is a supply surplus and the indicator would be green.

The following diagram illustrates how the four variables are utilized to come up with a dashboard indicator for specific occupational clusters.



Limitations

- Data is shown at the provincial level and may not account for regional or local variations.
- Data does not account for seasonal fluctuations.
- The 2015 outlook is determined by only one indicator, which can show a surplus or shortage; caution (yellow) indicators are not included.
- Economic indicators are each given equal weighting. It has not been determined if any one of the economic indicators is a better measurement of current or future skill shortages.

Appendix D

The years shown in the dashboards, 2003, 2005, and 2015, were chosen to demonstrate whether a certain trend is occurring in specific occupational clusters.

The 2003 and 2005 years were used because these were the two most recent years that the *Alberta Wage and Salary Survey* was conducted, which the vacancy rate and hiring difficulty rate are taken from. The next *Alberta Wage and Salary Survey* is scheduled for 2007.

Projection information of 2015 was taken from the 2005-2015 Occupational Demand and Supply Model.

Notes

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